

ABSTRACT OF THE DISCLOSURE

A system for providing a private mobile communication service separately from a public mobile communication network and method of processing a call using the same. The system includes a mobile station for establishing a radio communication channel with a private BTS (pBTS) when it moves from a public-only cell to a public/private common cell; and establishes a traffic channel with the pBTS if an identifier is added to a dialed number, and establishes a traffic channel with a public BTS if the identifier is not added. A private communication service apparatus determines, if a traffic channel request is received from the mobile station, whether the mobile station is a subscriber to the private mobile communication service, establishing a radio communication channel if the mobile station is a subscriber, and establishing a traffic channel over a private network and a public switched telephone network.